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Federal Policies

Peter Dreyfuss

Deputy Chief of Staff, U. S. Department of Energy
Office of Energy Efficiency and Renewable Energy

Peter Dreyfuss is Deputy Chief of Staff to the Assistant Secretary for the Office of Energy Efficiency and Renewable Energy at the U.S. Department of Energy. This Office develops and deploys efficient and clean energy technologies that meet our nation's energy needs, enhance our environment and strengthen our national competitiveness. He was appointed to this position in the Spring of 1999.

In the summer of 1997, he was appointed a Special Assistant at the U.S. Department of Energy to work in the area of energy efficiency and renewable energy with a focus on enhancement of DOE's community programs, serving as the senior advisor on community programs. He is the DOE staff representative to the President's Community Empowerment Board. In the Fall of 1997, he was also appointed National Coordinator of the President's Million Solar Roofs Initiative, a strategy to place solar energy systems on the roofs of one million U.S. buildings by 2010.


Dreyfuss has worked for nearly thirty years in the human services and community development area and for the past twenty years in energy efficiency, transportation and environmental programs.

Dreyfuss has been involved in numerous local, state and national efforts. Nationally, he served on the National Renewable Energy Laboratory's State and Local Advisory Board; the Surface Transportation Policy Project's advisory committee on local involvement in transportation; DOE's working group on the Weatherization Assistance Program; and United Way of America's Energy Advisory Committee.


At the state level, he was Chair of the Missouri Governor's Energy Future Coalition; chair of the Missouri Highway and Transportation Department's Environmental Committee; and was a member of the Governor's Environmental Education Commission. Dreyfuss was also the principal author of the *Missouri Statewide Energy Study*, completed in 1993 and principal consultant for *Economic Opportunities Through Energy Efficiency*, a report to the Missouri Legislature in 1994.

At the local level, while in Kansas City, Dreyfuss was involved in numerous civic endeavors including the local Environment and Energy Commission, the Housing Information Center, Mid America Assistance Coalition, Kansas City Spirit Festival; Greater Kansas City Chamber of Commerce; Kansas City FOCUS strategic planning effort; and he served as chairman of the citizen's advisory committee to the local metropolitan planning organization.

Federal Policies and Million Solar Roofs



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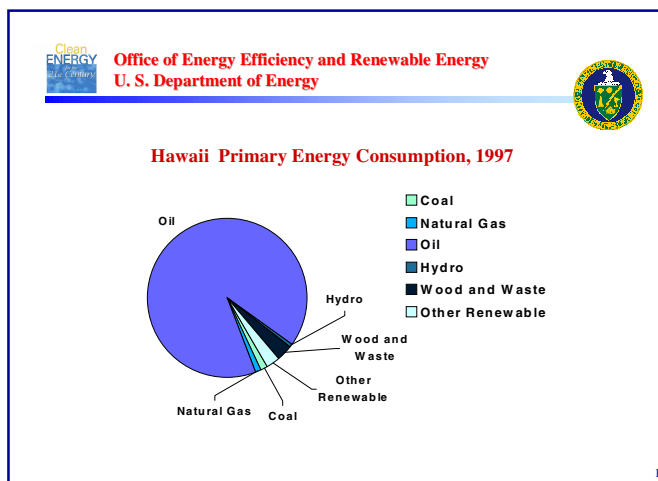
Hawaii Energy Symposium

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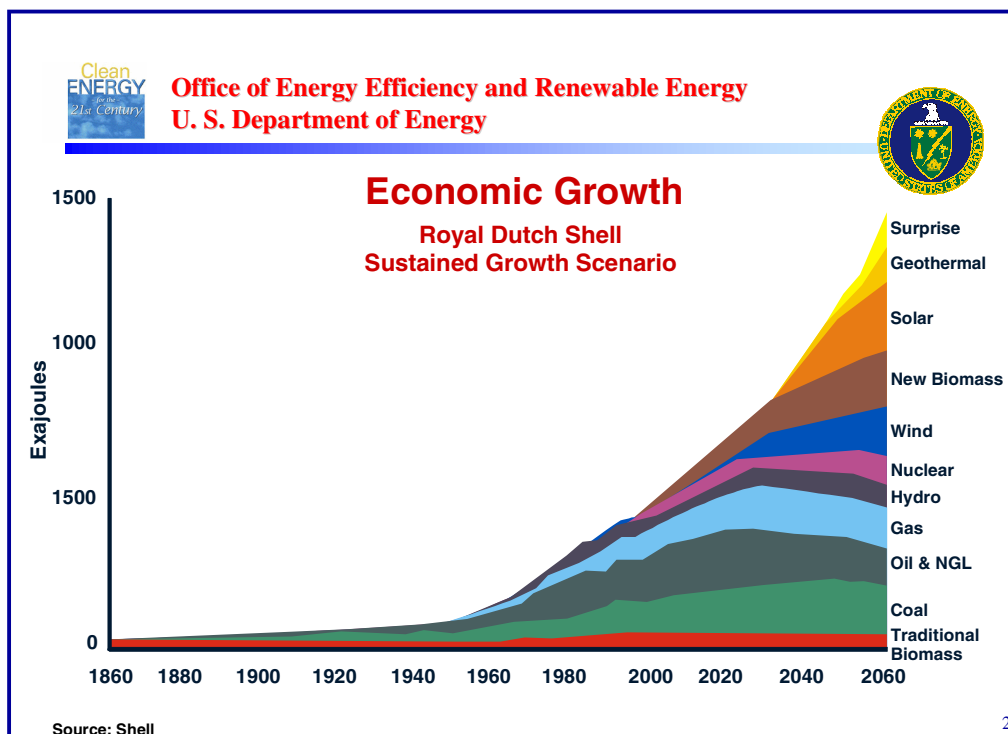
November 9, 2000

Thank you for inviting me here today.



As shown in the chart, Hawaii is heavily dependent on oil for energy.

(Source: EIA State Energy Data Report 1997, Table 83. Energy Consumption Estimates by Source, Selected Years 1960-1997, Hawaii.)



This is how Shell expects world energy needs to grow and to be met over the next several decades. Note the projected decline in oil and natural gas and the increase in renewable energy, particularly solar.

Note that they've even got "surprise" there up at the top, to account for some kind of technological breakthrough.

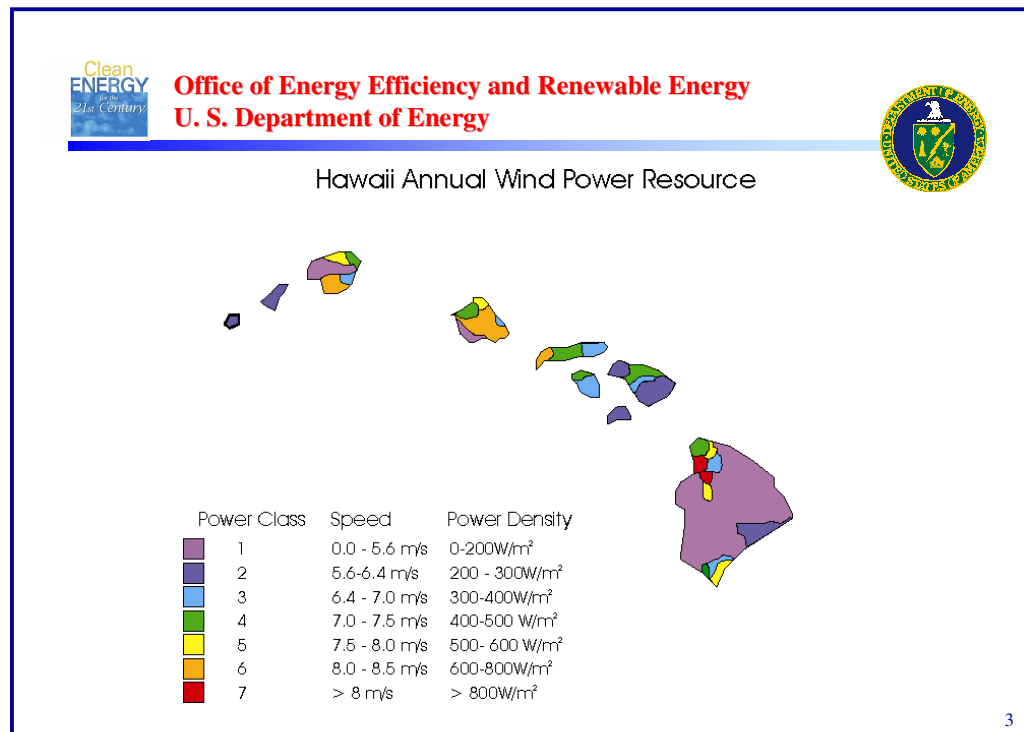
Wind

Hawaii has a significant wind resource.

The teal and green areas are class 3 and 4, which are fair to good resources with wind speeds that range from 14.3 to 16.8 mph.

The orange areas are excellent wind resources, with wind speeds measuring between 16.8 and 17.9 mph, mostly on the crests of ridges.

The red areas have outstanding wind speeds, between 17.9 and 19.7 mph. (Wind speeds are at heights of 50 m. Source: <http://www.NREL.gov/wind/usmaps.html>)



Solar

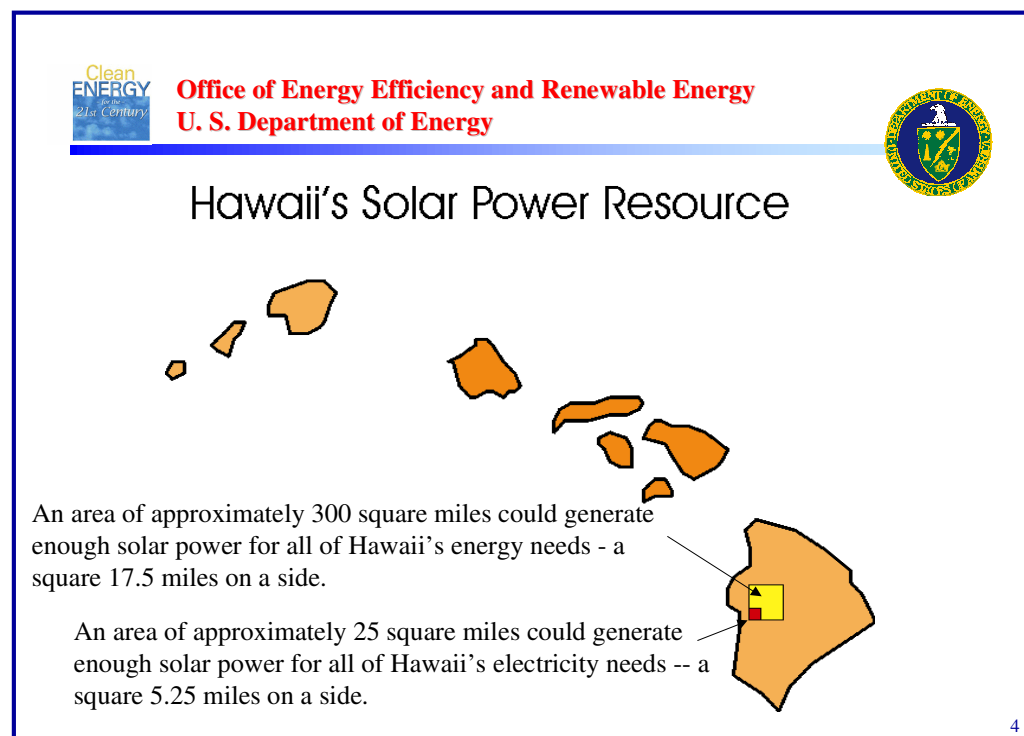
Almost 90% of the country receives between 6 and 8 kWh/m² per day, plenty for effective use of PV.

All of Hawaii is in the 6 to 8 range.

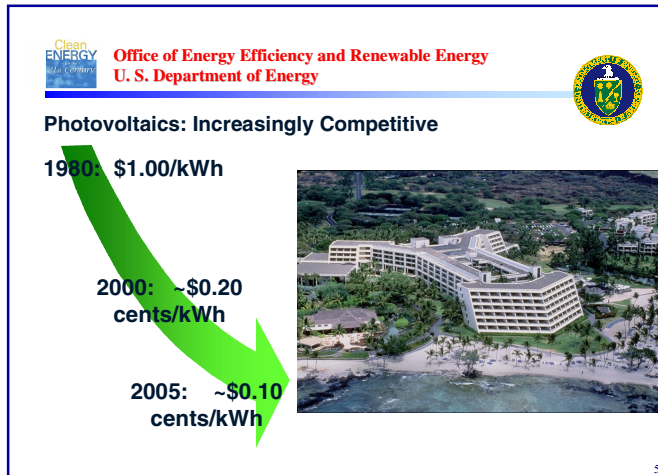
A relatively small square just 5.25 miles on a side could generate the equivalent of all of your electricity use -- with PV operating at just 10% efficiency.

A square just 17.6 miles on a side could supply the equivalent of all of your energy use. It wouldn't even have to be on land -- a floating square this size would do the trick, or an area broken up into a few thousand roof-size systems. You're already on the way with 8,516 roofs.

The amount of sunlight available in a certain place each year allows us to calculate how much energy can be converted into electricity. There is approximately 2 to 3 megawatt hours per year of sunlight on each square meter of the U.S., depending on location. In total the U.S. receives 2.4×10^{16} kWh of electricity per

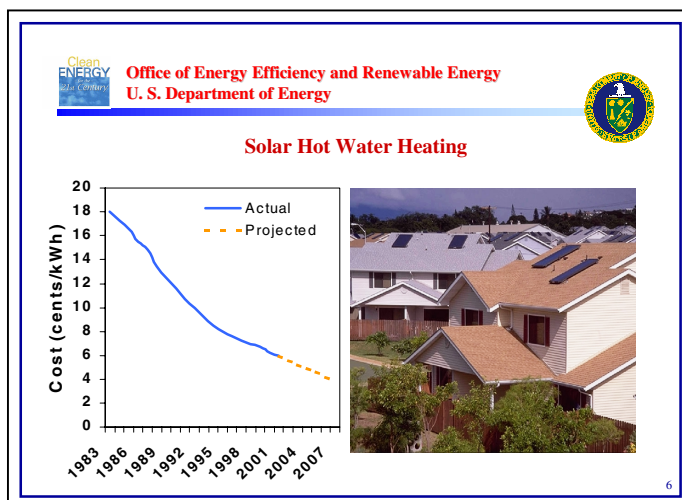


year, more than 10,000 times our annual energy use. Resource is average daily solar radiation per month, annual average for a 2-axis flat-plate PV system. On an average day, the U.S. receives approximately 5 to 9 kW for each square meter of exposed area. Las Vegas, for example, receives 9.7 kWh/m²; Boston receives approximately 5.3. Using a distributed approach with systems installed on buildings, vacant land, and parking lots the same result could be achieved with PV in every state. (Source: NREL Resource Assessment Program, www.rredc.nrel.gov/solar)

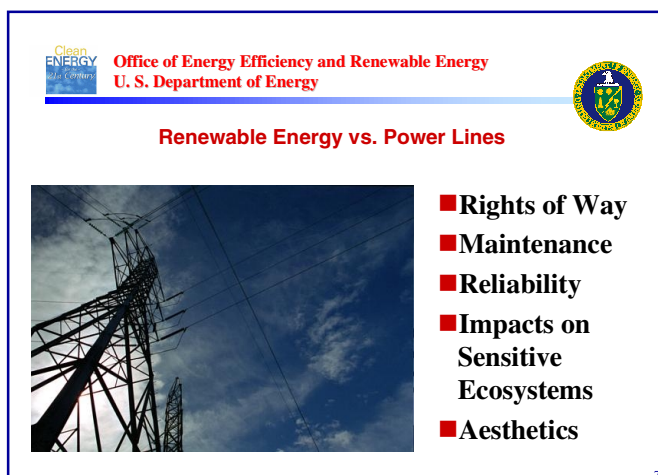


Here's the rooftop photovoltaic system on the Mauna Lani hotel.

Photovoltaics are becoming increasingly cost competitive.



In partnership with the Hawaiian Electric Company, the U.S. Navy installed 136 solar water-heating systems on residences in its Moanalua Terrace family housing project. Each system offsets about 1.7 tons of carbon dioxide, 8.2 pounds of sulfur dioxide, and 11.2 pounds of nitrogen oxide every year. Funding to help pay for the project was provided by the U.S. Department of Energy Federal Energy Management Program, which helps agencies reduce their costs, increase energy efficiency, use renewable energy, and conserve water.




Power Lines...

Utilities spend millions of dollars to chop down trees and spray herbicides in order to build power lines. It costs billions more to maintain power lines and their rights of way.

Many renewable energy technologies can be placed on-site in sensitive areas where power lines would be inappropriate.

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Old Technology to New Technology



- Distributed Power
- Green Power
- Zero Energy Buildings

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There is an ongoing shift from old technology to new technology. The old technology was central station power, with power lines. The new technologies include distributed generation, green power, and zero energy buildings.


Whole-Building Approach

Rebuild America – 300 partnerships to date; Retrofits of 510 million sf; saving 10.8 trillion Btu and \$170 million/year.


Right side: Hawaiian Electric Company (HECO) and its subsidiaries launched the Sun Power for Schools program in late 1996. The program is a green pricing program that forms a three-way partnership between the utilities, the State of Hawaii Department of Education, and electric utility customers. In July 1997, Sun Power for Schools made its first installation, a two-kilowatt PV system installed on the roof of the Kaimuki High School gymnasium. In addition to the Kaimuki High School installation, the Sun Power for Schools program has installed a number of other PV systems on schools on Oahu, Maui and Hawaii.

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■ Rebuild America



■ Build America



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Build America – Industry-led, cost-shared program to use systems engineering to reduce energy use, construction time, and construction waste by as much as 50%. Lower left: Moanalua Terrace.


Solar Buildings Vision

By the year 2020, there will be constructed, in the United States, a significant number of buildings that:

- meet their own energy needs by utilizing solar or other renewable resources,
- have no on-site or off-site carbon emissions,
- reduce utility peak electrical demand,
- optimize the health and productivity of their

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Zero Energy Buildings



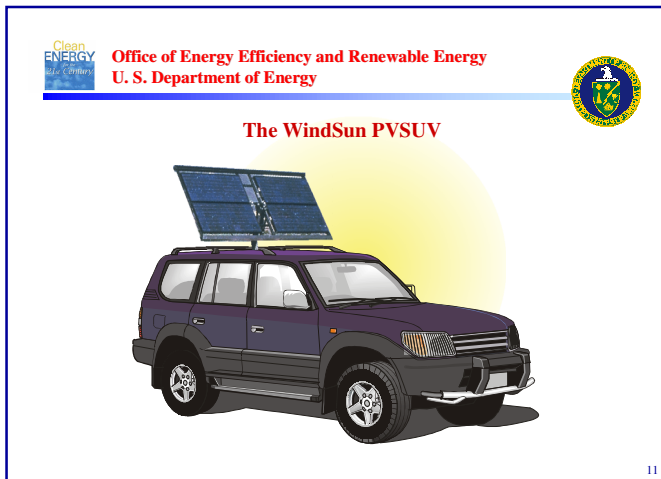
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occupants, and

- provide energy security from natural disasters and extended power outages.

The Opportunity:

Several DOE and electric utility energy efficiency programs carried out in the 1990s have demonstrated cost-effective new buildings with 60%–80% overall annual energy savings compared with energy-code compliant base case buildings. Continuing improvements in the energy performance of building enclosures, glazings, lighting systems, HVAC systems, controls, and office equipment can further reduce new building energy requirements. With reduced building loads, solar technologies can offer the opportunity to achieve “zero net annual energy use” in new buildings. In fact, some zero net energy (ZNE) buildings have already been completed; however, the challenge is to achieve cost-effective and affordable ZNE buildings. Clearly, widespread construction of ZNE buildings would also contribute significantly to U.S. economic and environmental health.



And here's the answer for transportation. (Just kidding.)

Million Solar Roofs Goals

- Create approximately 70,000 new high-tech jobs by 2010
- Slow greenhouse gas emissions by using clean energy from the sun
- Keep the U.S. companies competitive in the world market

Million Solar Roofs Initiative

- Announced by President Clinton, June 26, 1997, in address to United Nations Session on Environment and Development
- Announcement of Million Solar Roofs by Energy Secretary Peña, June 27, 1997
- White House directs agencies to prepare plans and information on programs they can use to support the Initiative
- Made into a line item in FY99 Appropriations

Million Solar Roofs Technologies

- Photovoltaics
 - Residential .5 kW
 - Schools and Churches 1 kW
 - Commercial 2 kW
- Solar Thermal Water Heating
 - Residential domestic 1 kW or 20 ft²
 - Residential pool heating 100 ft²
 - Commercial domestic 2.0 kW or 40 ft²
 - Commercial pool heating 400 ft²
- Solar Thermal Space Heating
 - 4.0 kW or 100 ft²



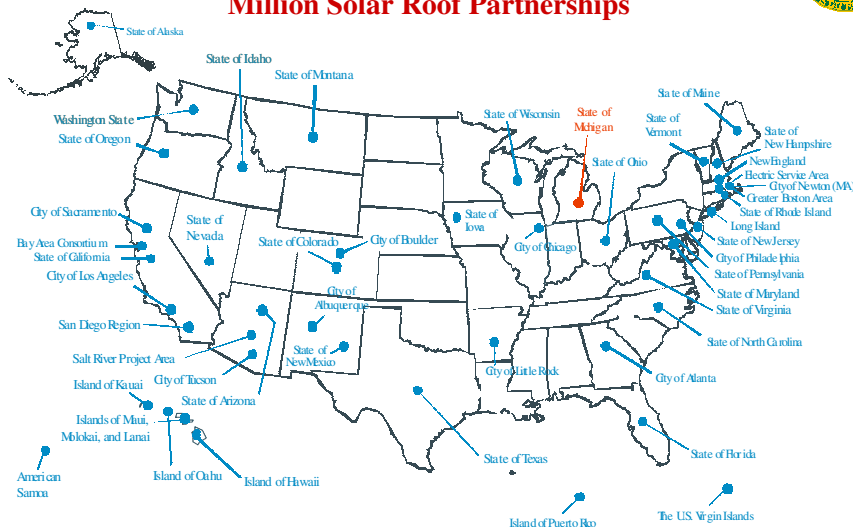
Million Solar Roofs Fundamentals

- Bottom-up: State and Local Partnerships
- Top-down: Federal Programs and Barrier Removal Activities
- State, Local and Federal Cooperation
- Flexibility, Innovation and Adaptation

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Million Solar Roof Partnerships



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Million Solar Roofs Accomplishments

- 48 State and Local Partnerships
- 1,044,000 Preliminary Pledges
- 110,000 Systems Installed
- 2,100 Federal Systems Installed
- \$3 million in FY 2001
- Positive Inspector General Report


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When choosing the best energy resource becomes the criteria, renewable energy will win easily. Poll after poll for nearly two decades now has shown a strong public preference for renewable energy.

MSR is a bellwether indicator of community support. We now have 48 MSR partners, pulled together in just 3 short years.

Partnerships are the heart of the MSR Initiative. DOE and the national labs help out with technical advice, a little seed money, and a network for sharing problems, solutions, and success stories so that each partnership can benefit from the collective experience.

- We expect that over the next 20 years the world's installed electricity capacity will double. Today that is about 3 million megawatts. That means another 3 million megawatts by 2020. That will be going to condition and light buildings, heat water, and run appliances that could be served by PV, solar thermal, or passive solar technologies.
- Renewable energy does create jobs and economic growth, just like we said it would.
- The number of states with renewable portfolio standards or systems benefits charges for renewable energy now stands at 27. That represents billions of dollars available for renewable energy development.
- In addition to providing money to the economy through industry growth, it's also saving us money, and even more importantly helping the environment.
- The signs of change are becoming obvious. Over the next few years the nature of how consumers buy electricity will be changed radically by utility restructuring.
- Consumers are learning more about where their power comes from and that they have choices.
- Wind Powering America is getting strong support from farmers in the Midwest, who are realizing that leasing some of their land to harvest the wind is good for their rural economies.
- Change and disruption are becoming the rule in the new economy, not the exception.




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Million Solar Roofs Initiative: 2001 Action Plan


<ul style="list-style-type: none"> ■ Assist MSR Partnerships and Provide Support Through Regional Offices ■ Enhance Financial Tools and Resources ■ Increase Consumer Awareness and Understanding ■ Strengthen Ties Between MSRI and Other Federal Agencies/DOE Programs ■ Encourage Adoption of Uniform Interconnection Standards and Solar-Friendly Codes, Promote Net Metering, and Eliminate Restrictive Covenants 	<ul style="list-style-type: none"> ■ Support Research, Development and Demonstration ■ Establish Certification and Testing Programs ■ Encourage Solar in New Housing Developments ■ Report on the Progress of MSRI
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